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09/960,618	09/21/2001	Koichi Otsuki	MES1P047	4302

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EXAMINER

NGUYEN, LAM S

ART UNIT PAPER NUMBER

2853

DATE MAILED: 09/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/960,618

Applicant(s)

OTSUKI, KOICHI

Examiner

LAM S NGUYEN

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-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 August 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 14-16, 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Ohkoda (US 6457803).

Ohkoda discloses a dot-recording device (FIG. 14) for recording ink dots on a surface of a print medium (FIG. 14, element 127) with the aid of a dot-recording head (FIG. 14, element 124) provided with a plurality of dot-forming elements (FIGS. 15-16, element 125) for ejecting ink droplets, the dots recording device comprising:

a main scanning unit configured to drive the dot-recording head and/or the print medium to perform main scanning (FIG. 14, element CONTROL SECTION);

a head driver configured to drive at least some of the dot forming elements to form dots during the main scanning (FIGS. 15-16);

a platen (FIGS. 15-16, elements 121, 123, 122) configured to extend in the main scanning and to be disposed opposite the dot-forming elements at least along part of a main scan path direction (FIG. 14, element 121), and the platen being configured to support the print medium at a position opposite the dot-recording head (FIG. 14);

a sub-scanning unit (FIG. 15-16, element 139) configured to move the print

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medium to perform sub-scanning in between the main scans; and

a controller configured to control the dot recording device, wherein the platen has a slot (FIG. 15-16: spaces between elements 121-123) extending in the main scanning direction a width of the slot in the sub-scanning direction corresponding to a specific sub-scanning range on a surface of the dot recording head including not entirely but part of the plurality of dot-forming elements (FIG. 15-16, element 125);

wherein the platen comprises:

a first support (FIG. 15, element 123) configured to support the print medium, the first support extending in the main scanning direction at a position opposite a first sub-group of dot-forming elements selected from the plurality of dot-forming elements;

a first slot (FIG. 15: the slot on the left of element 123) extending in the main scanning direction at a position opposite a second sub-group of dot-forming elements which are disposed in the sub-scanning direction downstream from the first sub-group of dot-forming elements;

a second support (FIG. 15, the middle element 121) configured to support the print medium, the second support extending in the main scanning direction at a position opposite a third sub-group of dot-forming elements which are disposed in the sub-scanning direction downstream from the second sub-group of dot-forming elements.

**Referring to claim 15:** a second slot (FIG. 15, slot 132) extending in the main scanning direction at a position opposite a fourth sub-group of dot-forming elements which are disposed in the sub-scanning direction downstream from the third sub-group of dot-forming elements.

**Referring to claim 16:** wherein the controller has:

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a first image printing mode in which dots are formed on the printing medium with the aid of the second to fourth sub-groups of dot-forming elements without the use the first sub-group of dot forming elements, thereby printing images without blank spaces up to front and/or rear edges of the print medium (FIG. 15-16); and

a second image printing mode in which dots are formed on the print medium with the aid of the first to fourth sub-groups of dot-forming elements, thereby printing images with blank spaces along the front and rear edges of the print medium (FIG. 1).

**Referring to claim 18:** wherein the platen has:

an upstream slot (FIG. 16, element 133) that extends in the main scanning direction at a position opposite a dot-forming element disposed at an upstream edge of the dot-recording head in the sub-scanning direction

a downstream slot (FIG. 16: the last slot on the left of element 122 ) that extends in the main scanning direction at a position opposite a dot-forming element disposed at a downstream edge of the dot recording head in the sub-scanning direction.

the controller comprises a print data storage unit which stores print data partially composed of image data for recording images in an expanded area that extends lengthwise beyond at least the front and rear edges of the print medium (The corresponding memory stores the print data to be printed in FIG 15 and FIG 16); and an edge printing unit that ejects ink droplets onto the expanded area on the basis of the print data.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 10-13, 17, 19, 26-30, 33-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohkoda (US 6457803) in view of Ono et al. (US6168320).

Ohkoda discloses the claimed invention as discussed above and:

**Referring to claims 33-34:** an image data generating program for causing the computer to generate data for an area outside the print medium beyond the edge on which the edge printing is performed (column 6, line 26-44).

**Referring to claims 10 and 26:** wherein the platen has:

an upstream slot (FIG. 16, element 133) that extends in the main scanning direction at a position opposite a dot-forming element disposed at an upstream edge of the dot-recording head in the sub-scanning direction

a downstream slot (FIG. 16: the last slot on the left of element 122 ) that extends in the main scanning direction at a position opposite a dot-forming element disposed at a downstream edge of the dot recording head in the sub-scanning direction.

the controller comprises a print data storage unit which stores print data partially composed of image data for recording images in an expanded area that extends lengthwise beyond at least the front and rear edges of the print medium (The corresponding memory stores the print data to be printed in FIG 15 and FIG 16); and an edge printing unit that ejects ink droplets onto the expanded area on the basis of the print data.

**Referring to claims 11, 27, 36:** wherein the controller comprises:

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an upper-edge positioning unit (FIG. 15: element 121 on the left of element 123)) which selects the position of the print medium in the sub-scanning direction such that when ink droplets are ejected onto the front edge of the print medium (FIG. 15), the print medium is supported on the platen, the front edge of the print medium is brought to a point above the downstream slot (FIG. 15, element 132), and the front edge reaches a point located in the sub-scanning direction upstream of the dot-forming element on the downstream edge in the sub-scanning direction; and

a lower-edge positioning unit (FIG. 16, the middle element 121) which selects the position of the print medium in the sub-scanning direction such that when ink droplets are ejected onto the rear edge of the print medium (FIG. 16), the print medium is supported on the platen, the rear edge of the print medium is brought to a point above the upstream slot, and the rear edge of the print medium reaches a point located in the sub-scanning direction downstream of the dot-forming elements on the upstream edge in the sub-scanning direction.

**Referring to claims 12, 28, 37, 29, 38:** wherein the platen further has a pair of lateral slots (FIG. 6, elements 44a-b) separated apart at a distance substantially equal to a width of the print medium (FIG. 6, element 41), the lateral slots extending in a sub-scanning range in which ink droplets are ejected from the plurality of dot-forming elements; and the dot-recording device further comprises a guide for positioning the print medium in the main scanning direction such that the print medium is supported on the platen (FIG. 6, element 48), and that the two edges of the print medium are kept at positions above the corresponding lateral slots.

**Referring to claims 13, 30, 35, 39:** wherein the print data includes information about a recording condition of dots in pixels in the expanded areas (column 6, line 26-44).

However, Ohkoda does not disclose wherein the controller has a first recording mode to effect printing near an edge of the printing medium, in the first recording mode the controller performing edge printing by ejecting ink droplets from at least some of the dot-forming elements disposed opposite the slot and without ejecting ink droplets from dot-forming elements other than the dot-forming elements disposed opposite the slot, and a second recording mode to effect printing an intermediate portion of the printing medium and wherein a surface area of the print medium is divided into an upper-edge portion containing the front edge of the print medium, a lower-edge portion containing the rear edge of the print medium, and an intermediate portion disposed between the upper-edge portion and lower-edge portion (**Referring to claim 17**).

Ono et al. disclose a printing method having a first recording mode to effect printing near an edge of the printing medium (FIG. 5B: the printing mode for ONE-PASS PRINTING IMAGE REGION), in the first recording mode the controller performing edge printing by ejecting ink droplets from at least some of the dot-forming elements near the edge of the printing medium (FIG. 5B: printing elements Cn, Bn ,An) and without ejecting ink droplets from dot-forming elements other than the dot-forming elements near the edge of the printing medium (FIG. 5B: printing elements Dn), and a second recording mode to effect printing an intermediate portion of the printing medium (FIG. 5B: the printing mode for MULTI-PASS PRINTING IMAGE REGION) and wherein a surface area of the print medium is divided into an upper-edge portion containing the front edge of the print medium, a lower-edge portion containing the rear edge of the print medium, and an intermediate portion disposed between the upper-edge portion and lower-edge portion (FIG. 5A-B).



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Therefore, it would have been obvious for one having ordinary skill in the art at the time the invention was made to modify the controller in the printing apparatus disclosed by Ohkada such that the controller has the first recording mode to effect printing near an edge of the printing medium and the second recording mode to effect printing an intermediate portion of the printing medium as disclosed by Ono et al. The motivation of doing so is to broaden the effective printing region to be printed by a printing head and execute optimal printing corresponding to input image data as taught by Ono et al. (column 2, line 61-64).

3. Claims 2-9, 20-25, 31, 32, 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohkoda (US 6457803) in view of Broder et al. (US 5646667).

Ohkoda discloses the claimed invention as discussed above and:

**Referring to claims 2, 20, 31, 32, 40:** wherein the specific sub-scanning range includes at least one of two end ranges in the sub-scanning at opposite ends of the dot-recording head, each end range including at least one dot-forming element (FIG. 15-16), and wherein the controller has:

(a) a first recording mode to effect printing near an edge of the printing medium in the first recording mode the controller performing edge printing by ejecting ink droplets from at least some of the dot-forming elements disposed opposite the slot when the print medium is supported on the platen, and the edge of the print medium is disposed above the slot (column 6, line 45-60), and

**Referring to claims 4 and 22:** wherein the slot is disposed at a position opposite a dot-forming element that is located at a downstream edge in the sub-scanning direction; and the

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controller performs the edge printing when a front edge of the print medium is disposed above the slot (FIG. 15, element 132).

**Referring to claims 5 and 23:** wherein the slot is disposed at a position opposite a dot-forming element that is located at an upstream edge in the sub-scanning direction; and the controller performs the edge printing when a rear edge of the print medium is disposed above the slot (FIG. 16, element 13).

**Referring to claim 6:** wherein the sub-scanning unit comprises:

an upstream sub-scanning unit configured to hold and move the print medium, the upstream sub-scanning unit being disposed on an upstream side in the sub-scanning direction with respect to the dot-recording head (FIG. 15, elements 128 and 129); and

a downstream sub-scanning unit configured to hold and move the print medium, the downstream sub-scanning unit being disposed on a downstream side in the sub-scanning direction with respect to the dot-recording head (FIG. 15, elements 130-131).

**Referring to claims 8 and 25:** wherein the controller performs the edge printing on the basis of image data representing an image extending outside the print medium beyond the edge on which the edge printing is performed (FIG. 15-16).

**Referring to claim 9:** wherein a length of an area of the image outside the print medium is set less than the slot width (FIG. 15-16).

**Referring to claim 3 and 21:** wherein the controller prevents ink droplets from being ejected by dot-forming elements other than the dot-forming elements disposed opposite the slot during the edge printing (column 6, line 45-59).

**Referring to claims 7, 24:** wherein the sub-scanning of the first recording mode is performed in a feed amount corresponding to a single dot pitch in the sub-scanning direction (FIG. 15-16).

However, Ohkoda does not disclose wherein the controller having a second recording mode to effect printing in an intermediate portion of the print medium, a maximum sub-scan feed amount in the second recording mode being greater than a maximum sun-scan feed amount in the first recording mode.

Broder et al. disclose a printing method having a first recording mode and a second recording mode wherein the second recording mode effectively prints in an intermediate portion of the print medium, a maximum sub-scan feed amount in the second recording mode (FIG. 7, element 41) being greater than a maximum sun-scan feed amount in the first recording mode (FIG. 7, element 42).

Therefore, it would have been obvious for one having ordinary skill in the art at the time the invention was made to modify the controller in the printing apparatus disclosed by Ohkoda such that the maximum sub-scan feed amount in the second recording mode being greater than the maximum sub-scan feed amount in the first recording mode as disclosed by Broder et al. The motivation of doing so is to hide medium-advance errors within the end-of-page zone as taught by Broder et al. (column 9, line 37-40).

#### ***Response to Arguments***

Applicant's arguments with respect to claims 1-2, 19-20, and 33-34 have been considered but are moot in view of the new ground(s) of rejection.

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Applicant's arguments filed 08/04/2003 referring to claims 14-15 have been fully considered but they are not persuasive.


**Regarding to the argument on page 21, third paragraph:** The applicant argued that the slits in Ohkoda are not slots for receiving ink droplets. However, based on the claim language, the slot in claims 14-15 is not defined for receiving ink droplets. Therefore, the argument is not persuasive.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAM S NGUYEN whose telephone number is (703)305-3342. The examiner can normally be reached on 7:00AM - 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, STEPHEN D. MEIER can be reached on (703)308-4896. The fax phone numbers for the organization where this application or proceeding is assigned are (703)305-3431 for regular communications and (703)305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

  
August 29, 2003

  
**STEPHEN MEIER**  
**SUPERVISORY PATENT EXAMINER**